**B – Amendments to the Claims**

Claims 1-15 (canceled).

Claims 16-57 (canceled).

Claim 58 (new) A method of determining flow rates in a multiphase fluid flowing in a well, comprising:

- positioning an apparatus in the well, said apparatus being provided with a main body portion that automatically lies in the bottom of the well when said well in inclined or horizontal;

- providing said main body portion with a first pair of sensors, said pair comprising a speed sensor for measuring local speed of the flowing fluid and a proportion sensor for measuring local proportions of the flowing fluid;

- measuring with said first pair of sensors the local speed of the flowing fluid in the vicinity of said main body portion and the local proportions of the flowing fluid in the vicinity of said main body portion;

- measuring in a first region of the well a second pair of:

(i) the local speed of the flowing fluid in a first location of the well; and

(ii) the local proportions of the flowing fluid in a second location of the well, such that said first and second locations are in alignment with each other on a line parallel to the axis of the well;

- measuring simultaneously in a second region of the well a third pair of said local speed and said local proportions, wherein the first and the second regions are in the same plane containing the axis of the well.

Claim 59. (new) A method as claimed in claim 58, wherein said first and second regions are distributed across the entire width of the well.

Claim 60. (new) A method according to claim 58, wherein said plane containing the axis of the well is vertical.

Claim 61. (new) A method as claimed in claim 58, wherein the well is inclined from vertical, the method comprising measuring a second pair of local speed and local proportions of the flowing fluid in a first region lying at the bottom of the vertical plane of the well, and measuring third pairs of local speed and local proportions of the flowing fluid in second regions distributed across the entire width of the well in the vertical plane.

Claim 62. (new) A method as claimed in claim 58, in which a section element (Δsi) of the well is assigned to each region, and the overall flow rate Q of each phase is determined from the relationship:

$$Q = \sum_i q_i \cdot \frac{\Delta si}{S}$$

where S is the total vertical section of the well

and $q_i$ is the flow rate of each phase in section element Δsi,

with $q_i = v_i.h_i$

where $v_i$ is the local speed of each phase in section element Δsi

and $h_i$ is the local proportion of each phase in section element Δsi.

Claim 63. (new) A method as claimed in claim 58, wherein said first and second locations are at the same point in each first and second regions.

Claim 64. (new) Apparatus for determining flow rates in a multiphase fluid flowing in a well, comprising:

- a tool body to be positioned in the well, said tool body comprising:
  - a main body portion that automatically lies in the bottom of the well when said well in inclined or horizontal; and
  - at least a deployable arm that is supported by the main body portion at one end and that can be deployed from a position inside said main body portion to a position where it occupies the entire diameter of the well;

- a first sensor pair mounted on said main body portion, said pair comprising a speed sensor for measuring local speed of the flowing fluid in the vicinity of said main body portion and a proportion sensor for measuring the local proportions of the flowing fluid in the vicinity of said main body portion;
- a second and a third sensor pairs, each sensor pair comprising:
- speed sensor mounted on the deployable arm for measuring local speed of the flowing fluid in a first location of the well; and
- proportion sensor mounted on the deployable arm for measuring local proportions of the fluid flowing in a second location of the well;

wherein said speed and proportion sensors are arranged such that said first and second locations are in alignment with each other on a line parallel to the axis of the well;

wherein said second and third sensor pairs lie in the same plane containing the axis of the well.

Claim 65. (new) Apparatus as claimed in claim 64, wherein, in use, said second and third pairs of speed and proportions sensor means are distributed across the entire width of the well.

Claim 66. (new) Apparatus as claimed in claim 64, wherein when the well is inclined from vertical, said plane containing the axis of the well is vertical and the second pair of speed and proportions sensor means lies at the bottom of said vertical plane.

Claim 67. (new) Apparatus as claimed in claim 65, further comprising a pair of speed and proportions sensor means lying at the top of the vertical plane of the well

Claim 68. (new) Apparatus as claimed in claim 64, wherein each pair of the speed sensor means and the proportions sensor means are included in multi-sensor assemblies.

Claim 69. (new) Apparatus as claimed in claim 64, wherein, when the well is inclined or horizontal, the main tool body rests under the influence of gravity against the bottom of the well, and the deployable arm is applied against the top of the well.

Claim 70. (new) Apparatus as claimed in claim 64, wherein, in use, the main body portion is centered about the axis of the well by said at least one deployable arm and by a second deployable arm mounted on the main body portion, said first one and second deployable arms being capable of being applied respectively against the bottom and top of the well.